

REMARKS

Claims 2 and 3 are amended herein. Support is found, for example, at page 15, lines 17-21, page 27, lines 12-14 and page 36, lines 3-9. No new matter is presented.

I. Response to Claim Rejections under 35 U.S.C. § 103

The Examiner maintains the rejection of claims 2-4, 8-10, 12-15 and 18-20 under 35 U.S.C. § 103(a) as being unpatentable over Brodtkin et al (U.S. Patent No. 6,322,728), and further in view of Halloran et al (U. S. Patent No. 6,117,612).

The Examiner recognizes that Brodtkin et al does not specifically teach the relationship the refractive index of the powder material n_1 and the refractive index of the binding agent n_2 recited in claim 2 but relies on Halloran for the teaching that the cure depth of a ceramic SLA resin is dependent upon the refractive indices of the ceramic powder and the medium.

Without conceding the merits of the rejection, independent claims 2 and 3 are amended herein to recite that the equation for measuring the amount of the volatile component and to recite that the ultraviolet (UV) curable binder consists essentially of a photopolymerization initiator, a polymerizable monomer and an additive for viscosity modification, wherein the additive for viscosity modification is a compound having a low viscosity and is capable of being copolymerized with the polymerizable monomer.

The present invention relates to a production process of a three-dimensionally shaped object (rapid prototyping), and the object of the present invention is to develop transparency by adjusting the refractive indices of the filler and the binder (curable material). To achieve this, it is important not to allow voids to remain in the film.

Halloran relates to a patterning consisting mainly of ceramic. However, in broad sense, it can be also said to be a three-dimensionally shaped object. The object of the Halloran is to form a shaped pattern by hardening ceramic with a curable binder. But, Halloran does not refer to transparency, and in the Halloran's method, voids inevitably remain in the film and the transparency is not achieved. That is, Halloran does not intend to achieve transparency.

More specifically, for example, Example 1 of Halloran contains water, and it is certain that Example 1 of Halloran becomes more than 5% by weight in the equation for measuring the amount of volatile component defined in "(Measurement method of volatile component)". In other words, Halloran employs an aqueous system and contains a large amount of water, so voids inevitably remain in the film and transparency is not achieved. That is, after water is evaporated, voids occur, and thereby the film becomes opaque. On the other hand, in the present invention, by achieving the volatile component of not more than 5% by weight in the equation for measuring the amount of volatile component defined in the specification, voids do not occur and thereby the film becomes transparent. In this regard, Applicants submit the attached illustration which clarifies the differences between the present invention (non-aqueous system) and Halloran (aqueous system).

In view of the above, the present invention is not rendered obvious by the cited references whether taken alone or in combination. Accordingly, Applicants respectfully request withdrawal of the rejection.

II. Conclusion


In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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